

## SPECIAL WARNINGS—WEATHER AND CROPS.

## STORMS AND WEATHER WARNINGS.

By H. C. FRANKENFIELD, Supervising Forecaster.

[Aug. 24, 1920.]

*Storm warnings.*—There were no severe storms during the month, and no storm warnings were necessary. Small craft warnings for fresh to moderately strong winds were issued on July 3 for the Maine coast, on July 18 for the lower lakes, on July 23 for Lakes Michigan and Huron, and on July 24 for the New England coast. These warnings were justified.

From July 14 to 16, inclusive, low pressure prevailed over the southern Caribbean Sea and the north coast of South America, and some heavy rains and moderately strong winds were reported over the Panama Canal Zone.

*Frost warnings.*—Warnings of possible light frost in the cranberry bogs of New Jersey were issued on July 26 and 27. The lowest temperature reported was 37° on the morning of July 27, but no frosts occurred, so far as is known.

*Special forecasts.*—Special wind and weather forecasts were issued during the progress of the International Yacht races off Sandy Hook, N. J., and for the United States Army aeroplane flight from New York to Alaska.

## WARNINGS IN OTHER DISTRICTS.

*Chicago, Ill., District.*—No frost warnings were issued during the month, except for northwestern Wyoming on the 6th.

Owing to the protracted dry weather in the far Northwest, the fire hazard had increased to such an extent that special fire-weather forecasts for Montana were requested by the district forester at Missoula, on the 20th inst., and were telegraphed daily during the remainder of the month.—H. J. Cox.

*New Orleans, La., District.*—No storm warnings were issued during the month and no storm occurred along the Gulf coast.

Mild weather prevailed generally with a greater number of rainy days over the southeastern portion of the district than the average.—I. M. Cline.

*Denver, Colo., District.*—No warnings of any kind were issued during the month.—A. H. Thiessen.

*San Francisco, Calif., District.*—The only warnings issued during the month were fire-weather warnings in California on the 22d. There were no storms on the coast.—G. H. Willson.

## RIVERS AND FLOODS, JULY, 1920.

By ALFRED J. HENRY, Meteorologist in charge, River and Flood Division.

[Weather Bureau, Washington, Aug. 30, 1920.]

The floods of the month were mostly local and unimportant, except in the Carolinas, where general though moderate floods prevailed from the 20th to 25th. The usual details appear in Table No. I.

In a year of remarkably low water in the rivers of the Pacific drainage, it is rather unusual to find a stream of the magnitude of the Colorado discharging a large flood flow. The snow cover in the Grand and San Juan drainage, also in the upper Rio Grande drainage was exceptionally heavy and melting was delayed by low temperature until the season was so far advanced that melting was general and rapid in the higher elevations. As a result the Colorado was in flood from its source to its mouth and the upper Rio Grande was also in moderately high flood.

It seems probable that the Elephant Butte Dam of the Reclamation Service in New Mexico took care of the peak of the Rio Grande flood.

The following report on the Colorado flood has just come to hand:

## REPORT ON RIVERS IN THE DENVER DISTRICT FOR MAY AND JUNE, 1920.

*Colorado River.*—At the end of March, 1920, reports from the tributary watersheds of the Colorado River indicated that the water content of the snow cover was greater than the normal in the Grand and Gunnison drainage areas and considerably greater in the Yampa, White, and San Juan areas. Interests affected were advised that the seasonal flow of the Colorado would be 30 per cent or more greater than the normal flow. Data

available at the end of June showed that the discharge for the early part of the summer was about 45 per cent in excess of the normal for the past eight years. The flow for May exceeded the normal by only 5 per cent, while the flow for June was about 80 per cent greater than the normal.

Flood stages were reached at several stations on the upper tributaries early in the third decade of May and at the rating stations at Elgin, Utah, and Fruita, Colo., near the close of the month. On May 27 interests at Topock, Ariz., were advised that the highest previous stage would be exceeded at Topock. The highest previous stage, 23.3 feet, was passed on the 29th, and 24.4 feet was reached at Topock on June 2. The discharge at Yuma attained its maximum for the season, 190,000 second-feet, on June 8. On June 9 the discharge was 163,000 second-feet, and by the end of June the discharge had decreased to 74,000 second-feet. Frequent advices of the expected discharge were furnished to the public affected by high water in the lower Colorado. Owing to the absence of discharge data during the early part of May the estimates were too low. After the middle of May the estimates were generally remarkably close to the measured discharge at Yuma.

*Rio Grande.*—Moderate stages prevailed in the Rio Grande during April. The highest stages in the lower Rio Grande occurred, as usual, in May. At Espanola, N. Mex., a stage of 7.4 feet, or 1.6 feet below the flood stage, was reached on May 22. Three spans of the bridge near Espanola were washed away on that date. The flood stage was reached at Albuquerque, N. Mex., on May 24 and at San Marcial, N. Mex., on the 27th. Timely and accurate forecasts were issued for the lower stations; in several instances the actual stages being within one-tenth of a foot of the predicted stages.—F. W. Brist.